

Notice of Allowability

Application No.

10/509,615

Examiner

Geoffrey L. Knable

Applicant(s)

BAKOS ET AL.

Art Unit

1733

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to interview of 6-20-2006.
2. ☒ The allowed claim(s) is/are 1-15.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☒ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date 9-29-2004
4. ☐ Examiner's Comment Regarding Requirement for Deposit
of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413),
Paper No./Mail Date _____.
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.

EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with George W. Rauchfuss on June 20, 2006.

The application has been amended as follows:

In the claims:

The claims have been amended as shown on the attached "Listing of Claims."

Summary of above-noted 6-20-2006 Interview:

Agreement was reached on the changes detailed on the attached "Listing of Claims" in order to place this application into condition for allowance. These changes were proposed by the examiner to correct some minor antecedent basis and other minor issues in the claims (e.g. spurious crossed out words - e.g. claim 1, lines 4, 7, 8) as well as to more clearly define what is meant by "movably disposed" with respect to the drums (i.e. so it doesn't read on simply a drum that for example can rotate as this is clearly not what is intended by "movably disposed") and to define the auxiliary track in claim 1 in a more generic manner since, as originally defined in claim 1, it seemed that this claim arguably was restricted to the fig. 2 embodiment (with overhead track 90 and transfer ring 100 suspended below the track) whereas the intent was clearly that it be

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generic to both the fig. 1 and fig. 2 embodiments (e.g. note dependent claims 6 and 7 to each embodiment). A similar change was proposed in claim 15, which is clearly directed to the fig. 1 embodiment.

Reasons for Allowance

2. The following is an examiner's statement of reasons for allowance:

Among the closest prior art, Miyamoto et al. (US 5,540,803) discloses a tire building system in the form of an assembly of devices on two parallel transfer tracks (esp. fig. 1) including a carcass building drum (1) and tire building drum (2) along a first track and belt/tread drums (11a and 11b) along a second track. Further, an auxiliary track perpendicular to the first and second tracks (note "26" and "5") is provided to transfer a belt-tread to the carcass being built. Various servicers are also shown. A layout generally similar to that claimed is thus suggested. In this tire building system, however, the carcass building drum and tire building drum are not movably disposed to be movable along the first transfer track as claimed. Further, a transfer ring movable between the two drums along the second track is not taught.

Irie (US 5,582,666) also discloses a tire building system in the form of an assembly of devices disposed along two parallel transfer tracks as well as various transfers and servicers (esp. fig. 4), it being further noted that in this particular system, the tire drums are movably disposed to be movable along the tracks. This system however is a very specifically disclosed configuration/method that differs significantly from that claimed as well as that of Miyamoto et al. (e.g. note that the tire

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building/shaping drum is along the second track with the belt drum, there also not being two belt/tread drums with transfers, etc.), it not being considered that the ordinary artisan would have found it obvious to modify the specific system/method of Miyamoto et al. to include movably disposed carcass and tire building drums in view of these teachings.

Fukamachi et al. (US 5,213,651) discloses a tire building system including two parallel tracks and movably disposed belt and tread drums but lacks a teaching or suggestion for providing movably disposed carcass and tire building drums in a specific configuration as claimed.

None of the closest prior art, then, whether taken singly or in combination, would teach or render obvious the specific combination of features of an assembly of devices for production of green tires or the related method of production of green tires as claimed.

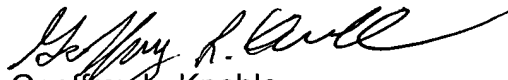
Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

3. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Geoffrey L. Knable whose telephone number is 571-272-1220. The examiner can normally be reached on M-F.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Crispino can be reached on 571-272-1226. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


Geoffrey L. Knable
Primary Examiner
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G. Knable
June 21, 2006

Listing of Claims

1. (Currently amended) An assembly of devices for production of green tyres, consisting of a belt building drum, a tread building drum, a carcass building drum and a tyre building drum, and further including devices for transferring particular semi-products from one device to another, a device for positioning and supporting bead cores and carcass assembly, a stitching device and material servisers, which are associated with the respective drums characterized in that

the assembly is arranged on two parallel transfer tracks (20 and 50) and comprises:

on the first transfer track (20), a movably disposed carcass building drum (30) movable along the first transfer track (20), a movably disposed tyre building drum (130) movable along the first transfer track (20), which is oriented opposite to the carcass building drum (30), a device (150) for supporting and adjusting the bead cores and the carcass assembly being disposed between the carcass building drum (30) and the tyre building drum (130),

on the second transfer track (50), a movably disposed belt building drum (60) movable along the second transfer track (50), a winding drum (70) for tread building ~~drum (70)~~, between the movably disposed belt building drum (60) and the winding drum (70) being disposed a first transfer ring (80) to transfer a belt from the belt building drum (60) onto the ~~tread building~~ winding drum (70),

an auxiliary track (90), arranged perpendicularly to the first and second transfer track (20, 50) ~~in a horizontal plane above the first and second transfer track (20, 50)~~ at a completing place (140), which is disposed on the first transfer track (20), wherein a

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second transfer ring (100) is disposed below the ~~auxiliary track (90)~~ to deliver a belt-tread assembly to the completing place (140), as well as to remove a complete green tyre,

a device (170) for spiralling a narrow strip together with a serviser for the narrow strip to be spiralled, which is associated with the winding drum (70),

a serviser (180) for supplying materials for preparation of the carcass assembly to the carcass building drum (30),

servisers (190) for supplying breaker plies to the belt building drum (60),

a serviser (200) for supplying tread to the winding drum (70) for production of the belt-tread assembly, and

a stitching device (160) for forming tyre edges, which is disposed close to the first first transfer track (20) at the completing place (140).

2. (Previously presented) An assembly of devices for production of green tyres according to claim 1, characterized in that

the belt building drum (60) is carried by a shaft of a first machine house (40), which is movably disposed on the second transfer track (50), and the winding drum (70) for production of the belt-tread assembly is carried by a shaft of a second machine house (42), which is also movably disposed on the second transfer track (50), and the drums are arranged on one horizontal axis and oriented one against each other.

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3. (Currently amended) An assembly of devices for production of green tyres according to claim 1, characterized in that

the belt building drum (60) and the winding drum (70) for production of the belt-tread assembly are carried by two independent, coaxially arranged shafts on one axis with a first machine house (40), which is movably disposed on the second transfer track (50), being arranged so that the belt building drum (60) is disposed closer to the machine house (40) and the ~~building~~ winding drum (70) is arranged further apart from the machine house (40), and a the first transfer ring (80) is movably disposed therebetween.

4. (Previously presented) An assembly of devices for production of green tyres according to claim 1, characterized in that

the device (150) for supporting and adjusting the bead cores and the carcass assembly, is movably disposed on the first transfer track (20) between the carcass building drum (30) and the tyre building drum (130).

5. (Previously presented) An assembly of devices for production of green tyres according to claim 1, characterized in that

the device (150) for supporting and adjusting the bead cores and holding the carcass assembly is disposed on the first transfer track (20) at the completing place (140).

6. (Currently amended) An assembly of devices for production of green tyres according to claim 1, characterized in that

a the second transfer ring (100) for delivering the belt-tread assembly to the completing place (140), as well as for removing the complete green tyre, is movably suspended on the auxiliary track (90), which is arranged in a horizontal plane above the first and second transfer track (20, 50), and moving movable along the auxiliary track (90) in a vertical plane, perpendicular to the transfer tracks (20 and 50) and intersecting the first transfer track (20) at the completing place (140).

7. (Currently amended) An assembly of devices for production of green tyres according to claim 1, characterized in that

the auxiliary track (90) with the second transfer ring (100) is provided in the form of a transfer device (91), equipped with 2 to 4 transfer rings (101 to 104), which are regularly displaced and arranged rotationally around a rotation axis parallel to the first and second transfer track (20, 50), wherein the transfer rings (101 to 104) are rotationally disposed in a vertical plane, perpendicular to the rotation axis, as well as to both the first and the second transfer track (20, 50), wherein if one of the rings (101 to 104) extends to the completing place (140) and is disposed on one axis with the tyre building drum (130), the opposite ring (101 to 104) is disposed on the axis of the belt building and winding drums (60 and 70).

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8. (Previously presented) An assembly of devices for production of green tyres according to claim 1, characterized in that

a stitching device (160) is disposed at the completing place from the outside of the first transfer track (20).

9. (previously presented) An assembly of devices for production of green tyres according to claim 1, characterized in that

the stitching device (160) is disposed at the completing place (140) from the inner side of the first transfer track (20).

10. (Currently amended) A method for production of green tyres by applying to the assembly of devices according to claim 14, characterized in that

the method includes the following steps:

belt preparation on the belt building drum (60), which is disposed on the second transfer track (50), by winding up ~~the~~ a first and ~~the~~ a second breaker ply delivered from breaker ply servisers;

belt transfer from the belt building drum (60) onto the winding drum (70) by a movement of the first transfer ring (80) on the second transfer track (50);

winding up the tread (7) onto the belt, wherein the tread is supplied from the tread serviser (200) and a belt-tread assembly results;

shifting the belt-tread assembly into the area of the auxiliary track (90);

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clamping and transfer of the belt-tread assembly to the completing place (140) by the second transfer ring (100);

preparation of a carcass assembly, consisting of the tyre sidewalls, the inner rubber and one or two carcass plies, on a the carcass building drum (30), disposed on the first transfer track (20), from carcass materials supplied by a combined serviser (180) of the carcass assembly;

transfer of the carcass assembly from the carcass building drum (30) into the device (150) for supporting and adjusting the bead cores and carcass assembly and adjusting the bead cores into a correct position;

transfer of the carcass assembly with adjusted bead cores by the device (150) for adjusting and supporting the bead cores and carcass assembly onto the tyre building drum (130) by a movement on the first transfer track to the completing place (140);

completion of the green tyre on the tyre building drum (130), including rotating the tyre building drum (130), inflating the carcass assembly, wrapping the bead cores, bringing them closer to each other and subsequent creating the tyre sidewalls and attaching the belt-tread assembly;

stitching the belt-tread assembly by the stitching device (160); and

clamping and transfer of the completed green tyre by the second transfer ring (100) to a place, where it can be removed.

11. (Currently amended) A method for production of green tyres by applying to the assembly of devices according to claim 15, characterized in that

it includes the following steps:

belt preparation on the belt building drum (60), which is disposed on the second transfer track (50), by winding up a first and subsequently a second breaker ply delivered from breaker ply servisers (190);

belt transfer from the belt building drum (60) onto the winding drum (70) by a movement of the first transfer ring (80) on the second transfer track (50);

winding up the tread (7) onto the belt, where the tread is supplied from the tread serviser (200) and a belt-tread assembly results;

shifting the belt-tread assembly into the area of one of the transfer rings (101 to 104) of the transfer device (91), which is currently present in the area of the second transfer track on the axis of the belt building and winding drums (60, 70);

preparation of a carcass assembly, consisting of tyre sidewalls, inner rubber and one or two carcass plies, on the carcass building drum (30), disposed on the first transfer track (20), from carcass materials supplied by a combined serviser (180) of the carcass assembly;

transfer of the carcass assembly by the carcass building drum (30) into the device (150) for adjusting and supporting the bead cores and carcass assembly and adjusting the bead cores into a correct position;

taking over the carcass assembly with adjusted bead cores by the tyre building drum (130) from the device (150) at the completing place (140) and transfer of the tyre building drum (130) to a starting position;

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transfer of the belt-tread assembly to the completing place (140) by one of the transfer rings (101 to 104) of the transfer device (91);

transfer of the carcass assembly with adjusted bead cores to the completing place (140);

completion of the green tyre on the tyre building drum (130), including rotating the tyre building drum (130), inflating the carcass assembly, wrapping the bead cores, bringing them closer to each other and subsequent creating the tyre sidewalls and attaching the belt-tread assembly;

stitching the belt-tread assembly by the stitching device (160); and

clamping and transfer of the completed green tyre by a transfer ring (101 to 104) of the transfer device (91) to a place, where it can be removed.

12. (Currently amended) A method for production of green tyres according to claim 10, characterized in that

after having transferred the belt onto the ~~tread-building~~ winding drum and before the tread building a narrow strip supplied from a serviser (210) is wound up on the belt in a spiralled manner by a winding device (170) for spiralling the narrow strip.

13. (Currently amended) A method for production of green tyres according to claim 11, characterized in that

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after having transferred the belt onto the ~~tread building~~ winding drum and before the tread building a narrow strip supplied from a serviser (210) is wound up on the belt in a spiralled manner by a winding device (170) for spiralling the narrow strip.

14. (Currently amended) An assembly of devices for production of green tyres, characterized in that

the assembly of devices is arranged on two parallel transfer tracks (20 and 50) and comprises:

on a the first transfer track (20), a movably disposed carcass building drum (30) movable along the first transfer track (20), a movably disposed tyre building drum (130) movable along the first transfer track (20), which is oriented opposite to the carcass building drum (30), a device (150) for supporting and adjusting ~~the~~ bead cores and ~~the~~ a carcass assembly being movably disposed between the carcass building drum (30) and the tyre building drum (130),

on a the second transfer track (50), a movably disposed belt building drum (60) carried by a shaft of ~~the~~ a machine house (40) and movable along the second transfer track (50), and a winding drum (70) for production of a belt-tread assembly carried by a shaft of a second machine house (42), which is also movably disposed ~~on~~ to be movable along the second transfer track (50), and the drums are arranged on one horizontal axis and oriented one against each other, between the movably disposed belt building drum (60) and the winding drum (70) being disposed a first transfer ring (80) to

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transfer a belt from the belt building drum (60) onto the ~~tread-building~~ winding drum (70),

an auxiliary track (90), arranged perpendicularly to the first and second transfer track (20, 50) in a horizontal plane above the first and second transfer track (20, 50) at a completing place (140), which is disposed on the first transfer track (20), wherein a second transfer ring (100) for delivering a belt-tread assembly to the completing place (140), as well as for removing a complete green tyre, is movably suspended on the auxiliary track (90) and arranged for moving along the auxiliary track (90) in a vertical plane, perpendicular to the transfer tracks (20 and 50) and intersecting the transfer track (20) at the completing place (140),

a device (170) for spiralling a narrow strip together with a serviser for a narrow strip to be spiralled, which is associated with the winding drum (70),

a serviser (180) for supplying materials for preparation of ~~the~~ a carcass assembly to the carcass building drum (30),

servisers (190) for supplying breaker plies to the belt building drum (60),

a serviser (200) for supplying tread to the winding drum (70) for production of the belt-tread assembly, and

a stitching device (160) for forming tyre edges, which is disposed at the completing place (140) from outside of the first transfer track (20).

15. (Currently amended) An assembly of devices for production of green tyres, characterized in that

the assembly of devices is arranged on two parallel transfer tracks (20 and 50) and comprises:

on the first transfer track (20), a movably disposed carcass building drum (30) movable along the first transfer track (20), a movably disposed tyre building drum (130) movable along the first transfer track (20), which is oriented opposite to the carcass building drum (30), a device (150) for supporting and adjusting bead cores and carcass assembly being disposed between the carcass building drum (30) and the tyre building drum (130) at the a completing place (140),

on the second transfer track (50), a movably disposed belt building drum (60) movable along the second transfer track (50), a winding drum (70) for tread building drum (70), wherein the belt building drum (60) and the winding drum (70) for production of a belt-tread assembly are carried by two independent, coaxially arranged shafts on one axis with a machine house (40), which is movably disposed, being arranged so that the belt building drum (60) is disposed closer to the machine house (40) and the ~~tread building~~ winding drum (70) is arranged further apart from the machine house (40), and a first transfer ring (80) is movably disposed therebetween,

an auxiliary track (90), arranged perpendicularly to the first and second transfer track (20, 50) ~~in a horizontal plane above the first and second transfer track (20, 50)~~ at the completing place (140), which is disposed on the first transfer track (20), wherein a second transfer ring (100) is provided in the form of a transfer device (91), equipped with 2 to 4 transfer rings (101 to 104), which are regularly displaced and arranged rotationally around a rotation axis parallel to the first and second transfer track (20, 50)

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and the transfer rings (101 to 104) are rotationally disposed in a vertical plane, perpendicular to the rotation axis, as well as to both the first and the second transfer track (20, 50) and if one of the rings (101 to 104) extends to the completing place (140) and is disposed on one axis with the tyre building drum (130), the opposite ring (101 to 104) is disposed on the axis of the belt building and winding drums (60 and 70),

a device (170) for spiralling a narrow strip together with a serviser for the narrow strip to be spiralled, which is associated with the winding drum (70),

a serviser (180) for supplying materials for preparation of ~~the~~ a carcass assembly to the carcass building drum (30),

servisers (190) for supplying breaker plies to the belt building drum (60),

a serviser (200) for supplying tread to the winding drum (70) for production of the belt-tread assembly, and

a stitching device (160) for forming the tyre edges, which is disposed at the completing place (140) from an inner side of the first transfer track (20) and below the transfer device (91).